



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,789	04/05/2001	Masanori Suzuki	64753 CCD	4081

7590 10/27/2003

Christopher C. Dunham
c/o Cooper & Dunham LLP
1185 Ave. of the Americas
New York, NY 10036

EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,789

Applicant(s)

SUZUKI et al

Examiner

J. DOTE

Group Art Unit

1756

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 9/26/03 (cut. mail. 9/22/03)
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-6, 8-22, 30, 32-40 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☒ Claim(s) 8, 30, 39 is/are allowed.
- ☒ Claim(s) 1-6, 9-22, 32-38, 40 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some* ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received
- in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicants' submission filed on Sep. 26, 2003 (cert. mail. Sep. 22, 2003) has been entered.

2. The examiner acknowledges the cancellation of claim 7 and the amendments to claims 1, 10, 13, 20, 21, and 38 filed in Paper No. 10 on Sep. 26, 2003 (cert. mail. Sep. 22, 2003). Claims 1-6, 8-22, 30, and 32-40 are pending.

3. The rejection of claims 7, 20, and 38 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on Jan. 24, 2003, Paper No. 7, paragraph 4, item (1), has been withdrawn in response to the cancellation of claim 7 and the amendments to claims 20 and 38.

The provisional rejection of claims 1-7 under the judicially created doctrine of obviousness-type double patenting over claims 1-20 of copending Application No. 09/982,877 (Application '877) in view of Diamond, Handbook of Imaging

Materials, pp. 165-168, set forth in Paper No. 7, paragraph 14, has been withdrawn in response to the amendment to claim 1, adding the limitation that the toner has a "saturation magnetization of 10 emu/g to 25 emu/g at a magnetic field of 10 kOe." Application '877, which is now US Patent No. 6,593,048 B2, claims a toner having a saturation magnetization of 10 to 30 emu/g at a magnetic field of 1000 Oe, which is outside the scope of instant claim 1. See reference claim 5.

4. The amendment filed in Paper No. 10 on Sep. 26, 2003, is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

The new paragraph at page 56, between lines 5 and 6, of the specification, filed in Paper No. 10, discloses that "[a]ll values of saturation magnetization of toners set forth in the following Examples and Comparative examples were determined at a magnetic field strength of 10 kOe, and are, therefore values of saturation magnetization at a magnetic field of 10 kOe." The disclosure in the new paragraph lacks antecedent basis in the originally filed specification. As noted by applicants in Paper No. 10, in the paragraph bridging pages 12 and 13, the originally

filed specification does not "expressly disclose" the magnetic field strength of 10 kOe.

Applicants in Paper No. 10 assert that the new paragraph filed in Paper No. 10 does "not introduce new matter but merely makes explicit what was already inherent in the disclosure as originally filed." Applicants argue that the magnetic field strength of 10 kOe was "necessarily inherent in the measured values of saturation magnetization (for the Examples and Comparative Examples) that were specified in the original disclosure, because (as established by the attached Declaration under §1.132) those values were in fact determined at a magnetic field of 10 kOe."

However, upon review of the originally filed specification, determining the toner saturation magnetization in a magnetic field of "10 kOe" would not have been obvious to a person having ordinary skill in the art. As discussed in the above objection, there is no disclosure in the originally filed specification of a magnetic field of 10 kOe. Nor is there disclosure in the originally filed specification that the reported toner saturation magnetizations in the examples and comparative examples of the specification were determined at a magnetic field of 10 kOe. Moreover, the Rule 132 declaration, executed by Masanori Suzuki on Aug. 1, 2003, filed in Paper No. 10, is not part of the originally filed specification. No new matter may be added to

the specification. The application must be complete when filed. Accordingly, the objection stands.

Applicants are required to cancel the new matter in the reply to this Office Action.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 10-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) Claims 10-12 are indefinite in the phrase "development unit capable of changing addition of additional toner to said two-component developer on the developer bearing member by changing a state of contact of said two-component developer on said developer bearing member with said additional toner in accordance with changes in concentration of toner in said two-component developer on said developer bearing member" (emphasis added). It is not clear how a change in contact is related to a change in the concentration of additional toner in the two-component developer.

(2) Claims 13-22 are indefinite in the phrase "development unit being capable of changing addition of additional toner to said two-component developer on the developer bearing member by changing a state of contact of said two-component developer on said developer bearing member with said additional toner in accordance with changes in concentration of toner in said two-component developer on said developer bearing member" (emphasis added) for the same reasons discussed in item (1) supra.

Applicants' arguments filed in Paper No. 10 have been fully considered but they are not persuasive.

Applicants assert that the amendments to claims 10, 13, and 21 overcome the rejections.

However, as discussed in the rejections, the amendments have not overcome the rejections. The instant specification at pages 21-23 and 46-54 merely describes a particular developing unit comprising particular components that "is capable of changing the incorporation state of the toner into the developer on the . . . developer bearing member, with the state of the contact of the developer and the toner being changed, in accordance with the changes in the concentration of the toner in the developer on the developer bearing member." The unit comprises: a development sleeve 15 which carries a two-component

developer comprising a magnetic carrier and a magnetic toner; a first regulating member 17 which regulates the amount of the two-component developer on the development sleeve 15 by scraping developer therefrom; a developer holding container 16 for holding the scraped off developer from the development sleeve 15; a toner container 19 adjacent to the developer holding container 16 which supplies magnetic toner to the development sleeve 15; and a second regulating member 23 which is attached to the developer holding container 16 and is disposed to form a gap between the free-end of the regulating member 23 and the development sleeve 15 to regulate the flow of magnetic toner from the toner container 19 to the development sleeve 15. See Fig. 1. The instant specification discloses that when the concentration of the toner in the two-component developer on the development sleeve 15 reaches a predetermined value, the "increased portion of the developer" on the sleeve 15 is scraped off by the second regulating member 23. The "scraped-off increased portion" by the second regulating member 23 prevents the flow of magnetic toner from the toner container 19 to the two-component developer on the development sleeve 15. Page 53, line 6, to page 54, line 10. In other words, the second regulating member 23 prevents the replenishment of magnetic toner to the two-component developer on

the development sleeve 15 with new or additional magnetic toner. The instant claims do not recite regulating or changing the addition of additional magnetic toner to the two-component developer on the developer bearing member as disclosed in the instant specification. Rather, the instant claims recite "changing addition of additional toner to said two-component developer on the developer bearing member by changing a state of the contact of said two-component developer on said developer bearing member with said additional toner in accordance with changes in concentration of toner in said two-component developer on said developer bearing member" (emphasis added). Applicants cannot read limitations from the specification into the claims.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-6, 9, 20, and 38 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s),

at the time the application was filed, had possession of the claimed invention.

Instant claims 1, 20, and 38 and claims dependent thereon recite that the toner has a saturation magnetization of 10 emu/g to 25 emu/g at a magnetic field of 10 kOe. The originally filed specification does not provide an adequate written description of the saturation magnetization recited in the instant claims. The originally filed specification at page 11, line 23, to page 12, line 1, and at page 17, lines 4-5, merely discloses that the toner has a saturation magnetization of 10 emu/g to 25 emu/g. As noted by applicants in Paper No. 10, in the paragraph bridging pages 12 and 13, the originally filed specification does not "expressly disclose" the magnetic field strength of 10 kOe. There is no disclosure in the originally filed specification that the saturation magnetization range of 10 emu/g to 25 emu/g is determined at a magnetic field of 10 kOe as recited in the instant claims.

Applicants' arguments filed in Paper No. 10 have been addressed in paragraph 4, supra.

9. The recitation "toner contains carbon black on the inside thereof, the amount of said carbon black is in the range of 6 wt.% or less" in instant claims 5, 18, and 36 is interpreted to mean that the toner comprising the magnetic material surface-

coated with a coloring agent further comprises carbon black in an amount of 6 wt% or less. This definition is consistent with the disclosure at page 26, lines 16-19, of the specification, which discloses that "[t]he best is that no carbon black is contained inside the toner from the viewpoint of the occurrence of the fogging of the background." Applicants have agreed to the examiner's definition. See Paper No. 6, filed on Nov. 12, 2002, page 9, lines 10-13. The following rejections have been made based on this definition.

The claim language recited in instant claims 10 and 13 is interpreted by the examiner to mean that the developing unit regulates the concentration of the magnetic toner in the two-component developer which is carried on a developer carrier by adding or not adding additional magnetic toner to the two-component developer on the developer carrier. The following reactions have been made based on the examiner's interpretation.

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 32-34, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,733,699 (Asanae'699) combined with European Patent 0936507 A2 (EP'507).

Asanae'699 discloses an image forming apparatus comprising a developer cleaner 5 comprising a magnetic toner and a developer carrier member 8 carrying a two-component developer. See Fig. 2, and col. 5, lines 31-35 and 62-65. Asanae'699's two-component developer is within the compositional limitations recited in the instant claims, but for the particular magnetic material surface coated with a pigment as recited in the instant claims.

Asanae'699's two-component developer comprises a magnetic carrier and a chargeable magnetic toner. The magnetic carrier and magnetic toner are present in a weight ratio of magnetic carrier to magnetic toner between 10:90 to 90:10. The magnetic toner comprises a binder resin and a magnetic powder and has a volume resistivity of not less than $10^{13} \Omega \cdot \text{cm}$. Col. 2, lines 25-29. The magnetic toner preferably comprises 20 to 60 wt% of magnetic powder. Col. 3, lines 14-15.

Asanae'699 discloses that its two-component developer can form a magnetic brush that can develop an electrostatic latent image on an image carrier to form a toner image and recover toner remaining on the surface of an image carrier after the toner image is transferred to a recording material. Thus, clear and high quality images can be subsequently obtained. Col. 1, lines 15-22; and col. 4, lines 36-48.

As discussed supra, Asanae'699 does not disclose the use of magnetic material coated with a coloring agent as recited in the instant claims. However, Asanae'699 does not limit the type of magnetic particles used in its magnetic toner. Asanae'699 discloses that the magnetic powder is "preferably formed to have an average particle size of between 0.1 to 3 μm ." Col. 3, lines 4-5.

EP'507 discloses black magnetic composite particles comprising magnetite particles surface coated with carbon black, which are within the compositional limitations recited in instant claim 34. See Table 6 at page 32, black magnetic composite particles example 12. The black magnetic composite particles have an average particle size of 0.24 μm . The average particle size of 0.24 μm is within the range of 0.20 to 0.40 μm recited in instant claim 37 and is also within the preferred range of 0.1 to 3 μm disclosed by Asanae'699. EP'507 exemplifies a magnetic toner comprising a binder resin and 40 wt% of said black magnetic composite particles. See col. 20, lines 45-52, and Table 7 at page 35, toner example 20. The magnetic toner has a volume resistivity of $2.6 \times 10^{14} \Omega \cdot \text{cm}$ and an average particle size of 9.8 μm . See Table 7 at page 36, toner example 20. The amount of 40 wt% of black magnetic composite particles is within the range of 10 wt% to 40 wt% recited in instant claim 32 and within the range of 20 to 60 wt% taught by Asanae'699. The volume

resistivity is within the range of not less than $10^{13} \Omega \cdot \text{cm}$ required by Asanae'699. EP'507 discloses that its black magnetic composite particles have excellent fluidity, blackness, and dispersibility in a binder resin. Page 3, lines 31-32. EP'507 further discloses that toners comprising its carbon black surface coated magnetic particles have excellent fluidity and blackness. The toners provide high quality images and can be used in high speed copiers. Page 3, lines 27-30 and 33-35. The toners also have a volume resistivity of usually not less than $10^{13} \Omega \cdot \text{cm}$, which meets the volume resistivity required by Asanae'699. EP'507, page 12, line 58, to page 13, line 1.

EP'507 does not disclose that its magnetic toner can be used in a two-component developer comprising a magnetic carrier as recited in the instant claims and disclosed by Asanae'699. However, as discussed supra, EP'507's magnetic toner meets the limitations of the magnetic toner required by Asanae'699 for its two-component developers. EP'507 further teaches the its magnetic toner has excellent blackness, fluidity, and dispersibility in a binder resin.

Thus, it would have been obvious for a person having ordinary skill in the art to use EP'507's magnetic toner in the two-component developer disclosed by Asanae'699, because that person would have had a reasonable expectation of successfully obtaining an image forming apparatus comprising said two-

component developer having the properties disclosed by Asanae'699 and providing high quality black toned images.

12. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507, as applied to claim 32 above, further combined with additional teachings in Asanae'699 and EP'507.

The combined teachings of Asanae'699 and EP'507 render obvious an image forming apparatus as described in paragraph 11 above, which is incorporated herein by reference.

Neither Asanae'699 nor EP'507 exemplifies a magnetic toner comprising magnetic powder in an amount of 10 to 30 wt% as recited in the instant claims.

However, as discussed in paragraph 11 above, Asanae'699 discloses that its magnetic toner preferably comprises 20 to 60 wt% of magnetic powder. Col. 3, lines 14-15. The lower preferred amount of 20 to 30 wt% is within the range recited in the instant claims. EP'507 discloses that the amount of binder resin in its black magnetic toner is "usually 50 to 900 parts by weight, preferably 50 to 400 parts by weight based on 100 parts by weight" of the magnetic particles. EP'507, page 12, lines 41-42. In other words, the amount of EP'507's black magnetic composite can be about 10 to 68 wt%, preferably about 20 to 68 wt%, based on the weight of the magnetic toner. The lower

preferred amount of 20 to 30 wt% is within the range recited in the instant claims and within the preferred range disclosed by Asanae'699.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Asanae'699 and EP'507, to adjust, through routine experimentation, the amount of carbon black surface coated magnetic particles in EP'507's toner example 20, such that the amount is from 20 to 30 wt% based on the total weight of the toner, because that person would have had a reasonable expectation of successfully obtaining an image forming apparatus having the properties disclosed by Asanae'699 and EP'507.

13. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507, as applied to claim 32 above, further combined with US 5,866,289 (Asanae'289).

The combined teachings of Asanae'699 and EP'507 render obvious an image forming apparatus as described in paragraph 11 above, which is incorporated herein by reference.

Neither reference discloses that the magnetic toner has a volume mean particle size of 2.5 to 10 μm as recited in the instant claims.

Asanae'289 teaches that to produce images with a high resolution, the volume average particle size of magnetic toners

in a two-component developer is 5 to 15 μm , preferably 5 to 12 μm . Col. 2, lines 51-53. The particle sizes of 5 to 10 μm are within the range recited in the instant claims.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Asanae'289, to adjust, through routine experimentation, the particle size of the magnetic toner disclosed by EP'507, such that the resulting magnetic toner has a volume average particle size of 5 to 10 μm , and to use the resultant magnetic toner in the developer disclosed by Asanae'699, because that person would have had a reasonable expectation of successfully obtaining an image forming apparatus having the benefits disclosed by Asanae'699 and EP'507 and providing black toned images with improved resolution.

14. Claims 10-16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507 and US 5,771,426 (Oka).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507 and Oka.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507, Asanae'289, and Oka.

The combined teachings of Asanae'699 and EP'507 render obvious an image forming apparatus as described in paragraph 11 above, which is incorporated herein by reference.

The combined teachings of Asanae'699 and EP'507 render obvious an image forming apparatus as described in paragraph 12 above, which is incorporated herein by reference.

The combined teachings of Asanae'699 and EP'507 render obvious an image forming apparatus as described in paragraph 13 above, which is incorporated herein by reference.

As discussed in paragraph 11, supra, Asanae'699 discloses an image forming apparatus comprising a container comprising the magnetic toner and a developer bearing member. However, neither Asanae'699 nor EP'507 discloses a developing unit as recited in the instant claims.

Oka discloses a developing unit that meets the additional limitations recited in instant claims 10 and 13. Oka's developing unit 2 comprises (1) a developer carrier 4 which conveys a two-component developer comprising a magnetic toner and a magnetic carrier; (2) a regulating member 6 for regulating the amount of the two-component developer carried on the developer carrier 4 by scraping off the developer therefrom; (3) a developer storing container 10 for storing the scraped-off developer by the first regulating member; (4) a developer holding

container 11; and (5) a toner hopper 8 storing fresh magnetic toner 3a to be replenished into the two-component developer on the developer carrier 4. The toner hopper 8 is adjoined to said developer holding container 10 at an upstream side of the container 10 in a direction in which the developer carrier 4 conveys the two-component developer. The toner hopper 8 comprises an opening 8a contacting the two-component developer on the developer carrier 4 and forming a first toner layer, and the developer existing in the container 10 and forming a second developer layer 3-2. The two-component developer 3-1 forming a first layer on the developer carrier 4 is conveyed to the developing position to develop a latent electrostatic image on the drum 1. The developer 3-2 forming a second layer of developer and removed by the regulating member 6 moves within the container 10 to the opening 8a at a position remote from the developer carrier 4 due to its own internal pressure and weight. The volume of the second developer layer 3-2 varies in accordance with the toner concentration in the developer on the developer carrier 4. "Specially, when the toner concentration is high, the area over the developer 3-1 on the sleeve 4 and to be conveyed to the developing position in a great ratio contacts the fresh toner 3a is reduced. As a result, the amount of toner 3a to be taken

by the developer 3-1 is reduced. Conversely, when the toner concentration is low, the above area is increased with the result that the toner 3a is taken into the developer 3-1." Col. 8, line 31, to col. 9, line 55; and Fig. 1. Accordingly, Oka's developing unit has the property recited in instant claims 10 and 13. Oka further discloses an imaging forming method comprising the steps of developing an electrostatic latent image on image carrier drum 1 with the two-component developer carried on the developer sleeve 4 in the developing unit 2. See Fig. 1.

Oka discloses that its developing unit is capable of sufficiently charging the magnetic toner in a two-component developer even when used in a high-speed image forming apparatus. The developing unit is also capable of providing toned images with stable image densities without background contamination. Col. 6, lines 3-13.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Oka, to use Oka's developing unit in the image forming apparatus rendered obvious over the combined teachings of Asanae'699 and EP'507, because that person would have had a reasonable expectation of successfully obtaining an image forming apparatus and an image forming method that are capable of stably providing images

without decrease in image density and without background contamination.

15. Claims 1-3, 5, 6, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507, as applied to claims 32-34, 36, and 37 above, further combined with additional teachings in EP'507

Asanae'699 combined with EP'507 renders obvious an imaging apparatus as discussed in paragraph 11 above, which is incorporated herein by reference.

EP'507's black magnetic toner in example 20 has a saturation magnetization of 29.6 emu at a magnetic field of 10 kOe, which is outside the range of 10 emu/g to 25 emu/g at a magnetic field of 10 kOe recited in the instant claims. However, EP'507 teaches that the saturation magnetization of its toner may be in the range of preferably 20 to 80 emu/g at a magnetic field of 10 kOe. EP'507, page 13, lines 6-7. The lower preferred saturation magnetizations of 20 to 25 emu/g at a magnetic field of 10 kOe are within the range recited in the instant claims.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of EP'507, to adjust, through routine experimentation, the amount of carbon black surface coated magnetic particles in the black magnetic toner in EP'507's example 20, such that the black magnetic black toner has

a saturation magnetization of 20 to 25 emu/g at a magnetic field of 10 kOe, because that person would have had a reasonable expectation of successfully obtaining a two-component developer and an image forming apparatus comprising said two-component developer having the properties disclosed by Asanae'699 and providing high quality black toned images as disclosed by EP'507.

16. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507, as applied to claim 1 above, further combined with Asanae'289.

The combined teachings of Asanae'699 and EP'507 render obvious a two-component developer as described in paragraph 15 above, which is incorporated herein by reference.

Neither reference discloses that the magnetic toner has a volume mean particle size of 2.5 to 10 μm as recited in the instant claims.

Asanae'289 teaches that to produce images with a high resolution, the volume average particle size of magnetic toners in a two-component developer is 5 to 15 μm , preferably 5 to 12 μm . Col. 2, lines 51-53. The particle sizes of 5 to 10 μm are within the range recited in the instant claims.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Asanae'289, to adjust, through routine experimentation, the particle size of the

magnetic toner disclosed by EP'507, such that the resulting magnetic toner has a volume average particle size of 5 to 10 μm , because that person would have had a reasonable expectation of successfully obtaining a two component developer having the benefits disclosed by Asanae'699 and EP'507 and providing black toned images with improved resolution.

17. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asanae'699 combined with EP'507 and Oka.

The combined teachings of Asanae'699 and EP'507 render obvious an image forming apparatus as described in paragraph 15 above, which is incorporated herein by reference.

As discussed in paragraph 15, supra, Asanae'699 discloses an image forming apparatus comprising a container comprising the magnetic toner and a developer bearing member. However, neither Asanae'699 nor EP'507 discloses a developing unit as recited in the instant claims.

Oka discloses a developing unit that meets the limitations recited in instant claim 20. The discussion of Oka in paragraph 14 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Oka, to use Oka's developing unit in the image forming apparatus rendered obvious over the combined teachings of Asanae'699 and EP'507, because

that person would have had a reasonable expectation of successfully obtaining an image forming apparatus that is capable of stably providing images without decrease in image density and without background contamination.

18. Applicants' arguments filed in Paper No. 10 with respect to the rejections set forth in paragraphs 11-17 above have been fully considered but they are not persuasive.

Applicants assert that it would not have been obvious to use the magnetic toner of EP'507 in the two-component developer of Asanae'699. Applicants argue that in general the developing process using one component developers and the requirements for one component developers are different from those for two component developers. Applicants assert that one of ordinary skill in the art would not look to one component developers (toners) for suggestions for modification or improvement of toner component of a two component developer.

However, as discussed in the rejection in paragraph 11 above, EP'507 teaches a black magnetic toner that meets the toner requirements disclosed by Asanae'699. EP'507 also teaches the advantages of using its black magnetic toners. In particular, EP'507's black magnetic toner has excellent fluidity, blackness, and dispersibility in a binder resin. The toners provide high quality images and can be used in high speed copiers. As

discussed in paragraph 11, Asanae'699 is also interested in providing high quality images. Thus, EP'507 provides reason, suggestion, and motivation to a person having ordinary skill art to use EP'507's black magnetic toner as the toner in Asanae'699's two-component developer. Accordingly, the instantly claimed two-component developer is rendered obvious over the combined teachings of Asanae'699 an EP'507.

Applicants further assert that the prior art does not teach or suggest a magnetic toner having the saturation magnetization at a magnetic field of 10 KOe as recited in instant claim 1.

However, as discussed in rejection of paragraph 15 above, EP'507 teaches that its black magnetic toner may have a saturation magnetization preferably in the range 20 to 80 emu/g at a magnetic field of 10 kOe. The lower preferred saturation magnetizations of 20 to 25 emu/g at a magnetic field of 10 kOe are within the range recited in the instant claims. Thus, for the reasons discussed in the rejection of paragraph 15, the two component developer recited in instant claim 1 is rendered obvious over the cited prior art.

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed.

Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. Claims 13-18 and 32-36 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2 and 19 of US Patent No. 6,593,048 B2 (Sasaki) in view of Diamond, Handbook of Imaging Materials, pp. 162-168.

Sasaki claims an image formation apparatus comprising: (1) a toner container comprising a magnetic toner configured to supply the magnetic toner to a developer carrier; (2) a developer container comprising a magnetic carrier configured to carry the magnetic toner on a surface thereof and in which the toner is mixed with the magnetic carrier to form a two-component developer; (3) a first regulating member configured to control a volume of the two-component developer transported by the developer carrier; and (4) a second regulating member arranged to border a region with the developer carrier, and configured to regulate how much magnetic toner is transferred to the developer

container, wherein the second regulating member changes a mixing ratio of the magnetic carrier and magnetic toner, according to a change of magnetic toner concentration of the two-component developer on the developer carrier. The magnetic toner comprises magnetic particles coated with carbon black. The magnetic particles coated with carbon black are within the magnetic particle compositional limitations recited in instant claims 16 and 34. See reference claim 19.

The image forming apparatus recited in reference claim 19 has the property recited in instant claim 13. The second regulating member (4) regulates the amount of magnetic toner in the toner container (1) transferred to the developer container, according to a change of magnetic toner concentration of the two-component developer on the developer carrier.

Reference claim 19 of Sasaki does not positively require that the image forming apparatus comprise a developer carrier. However, reference claim 19 recites the interaction of a developer carrier with components (1) through (4). The use of a developer carrier to carry the two-component developer is well-known in the art of electrophotography. See Diamond, pages 162-163 and Figs. 4.2 and 4.3. Diamond shows a typical two-component developer housing and a strand of magnetic brush comprising a two-component developer on a developer roll, where

the magnetic toner in the magnetic brush develops the electrostatic latent image on a photoreceptor.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in reference claim 19 of Sasaki and the teachings in Diamond, to incorporate a developer carrier in the image forming apparatus recited in reference claim 19 because that person would have had a reasonable expectation of successfully obtaining an image forming apparatus capable of developing an electrostatic latent image with the magnetic toner of a two-component developer.

Reference claim 19 does not require that the magnetic toner comprise a binder resin as recited in the instant claims. Nor does reference claim 19 require that the coated magnetic particles be present in the amounts recited in instant claims 14, 17, 32, and 35. However, the use of a binder resin in a toner is well-known in the art. Diamond discloses that the role of a binder resin in a toner is to bind the pigment to the paper or transparency material to form a permanent image. "This is typically done by selecting a polymer that will melt at a reasonable temperature when heat is applied in any of a number of ways or one that can be forced into the paper fibers at high pressure without additional heat." Diamond, p. 165, lines 9-11. Diamond further lists common toner binder resins in Table 4.1. See Diamond, pp. 165-168. In addition, reference claim 2 of

Sasaki requires that the coated magnetic particles be present in amount between 10 to 30 % by weight which is within the range recited in instant claims 14, 17, 32, and 35.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in reference claim 2 of Sasaki and the teachings in Diamond, to use the carbon black coated magnetic particles in an amount of 10 to 30 wt% and to incorporate a binder resin in the magnetic toner of the two-component developer recited in reference claim 19 of Sasaki, because that person would have had a reasonable expectation of successfully obtaining an image forming apparatus capable of forming permanent black toned images on paper or a transparency.

21. Claims 19 and 37 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2, 8, and 19 of Sasaki in view of Diamond, Handbook of Imaging Materials, pp. 162-168.

The subject matter recited in reference claims 2 and 19 of Sasaki combined with the teachings in Diamond render obvious an image forming apparatus as described in paragraph 20 above, which is incorporated herein by reference.

Reference claims 2 and 19 do not require that the coated magnetic particles have an average particle size of 0.20 to 0.40 μm recited in instant claims 19 and 37.

However, reference claim 8 requires that the magnetic particles have an average particle size of 0.2 to 0.4 μm , which meets the range of 0.2 to 0.4 μm recited in instant claim 6.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in claim 8 of Sasaki, to adjust, through routine experimentation, the average particle size of the carbon black coated magnetic particles of the magnetic toner, such that the resulting magnetic particles have an average particle size of 0.2 to 0.4 μm , and to use the resultant magnetic toner in the two-component developer in the image forming apparatus rendered obvious over the subject matter recited in reference claims 2 and 19 of Sasaki combined with the teachings in Diamond, because that person would have had a reasonable expectation of successfully obtaining an image forming apparatus capable of forming permanent black toned images on paper or a transparency.

22. Claims 22 and 40 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2 and 19 of Sasaki in view of Diamond,

Handbook of Imaging Materials, pp. 162-168, further in view of Asanae'289.

The subject matter recited in claims 2 and 19 of Sasaki combined with the teachings of Diamond render obvious an image forming apparatus as described in paragraph 20 above, which is incorporated herein by reference.

Reference claims 2 and 19 do not require that the magnetic toner to have an average volume particle size of 2.5 to 10 μm as recited in instant claims 22 and 40.

However, Asanae'289 teaches that to produce images with a high resolution, the volume average particle size of magnetic toners in a two-component developer is 5 to 15 μm , preferably 5 to 12 μm . Col. 2, lines 51-53. The particle sizes of 5 to 10 μm are within the range recited in the instant claims.

It would have been obvious for a person having ordinary skill in the art, in view of teachings in Asanae'289, to adjust, through routine experimentation, the particle size of the magnetic toner recited in the claims of Application'877, such that the resulting magnetic toner has a volume average particle size of 5 to 10 μm , and to use the resultant magnetic toner in the image forming apparatus rendered obvious over the subject matter recited in the claims of Sasaki combined with the teachings of Diamond, because that person would have had a reasonable expectation of successfully obtaining an image forming

apparatus that provides permanent black toned images with improved resolution.

23. Claim 10-12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 20 of Sasaki in view of Oka and Diamond, Handbook of Imaging Materials, pp. 165-168.

Sasaki claims an image forming method comprising the step of developing a latent image by a developer, wherein the developer comprises a magnetic carrier and a magnetic toner comprising magnetic particles coated with carbon black. See reference claim 20.

Reference claim 20 does not require the use of a developing unit as recited in instant claim 10. However, Oka discloses a developing unit that meets the developing unit limitations recited in instant claim 10. The discussion of Oka in paragraph 14 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Oka's developing unit in the image forming method recited in claim 20 of Application '877, because that person would have had a reasonable expectation of successfully obtaining an image forming method that stably provides images with a decrease in image density and without background contamination.

Reference claim 20 does not require that the magnetic toner comprise a binder resin as recited in the instant claims. However, the use of a binder resin in a magnetic toner is well-known in the art as shown by Diamond. The discussion of Diamond in paragraph 20 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings in Diamond, to incorporate a binder resin in the magnetic toner in the image forming method rendered obvious over the subject matter recited in claim 20 of Sasaki combined with the teachings of Oka, because that person would have had a reasonable expectation of successfully obtaining an image forming method capable of forming permanent toned images on paper or a transparency.

24. Applicant's arguments filed in Paper No. 10 regarding the obviousness-type double patenting rejections in paragraphs 20-23 above have been fully considered but they are not persuasive.

Applicants comment that "[i]t is understood, however, submission of a terminal disclaimer or other appropriate response may be deferred so long as the rejection remains provisional."

However, the rejections are no longer provisional because US application 09/982,877 issued as US Patent 6,593,048 B2 (Sasaki) on Jul. 15, 2003. Because applicants have not filed a terminal disclaimer to Sasaki, nor have applicants provided any

persuasive arguments to withdraw the rejections, the obviousness-double patenting rejections stand.

25. Claims 8, 30, and 39 are allowable over the prior art of record.

Claim 21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest a toner comprising a polyester binder resin and magnetic material, as recited in the instant claims, and wherein said toner has a molecular weight distribution as recited in instant claims 8, 21, 30, and 39, and contains a THF-insoluble component in an amount of 2 to 40 wt% of said toner.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (703) 308-2464. The central fax phone number is (703) 872-9306.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Palestine Jenkins, whose telephone number is (703) 308-3521.

Application/Control Number: 09/826,789
Art Unit: 1756

Page 34

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JLD
October 18, 2003

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500
1700